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Asbestos Disposal Sites NPL Site**Morris County, Millington, New Jersey****CIRCLE NO. NJD980634149****Addendum to the Health Assessment****BACKGROUND AND STATEMENT OF ISSUES**

The Agency for Toxic Substance and Disease Registry (ATSDR) received a request from the U.S. Environmental Protection Agency (EPA) for an evaluation of the health threat posed by asbestos contamination in the soil and in residences at the Asbestos Disposal Sites NPL Site. The contamination was found as a result of sampling recommended in the Health Assessment (HA), prepared by ATSDR, dated April 10, 1989. Twelve samples were collected in July 1990 at two of the subsites associated with this site: New Vernon Road Site and White Bridge Road Site.

Analysis of the samples revealed a maximum concentration of 5% by volume chrysotile asbestos in the soil and 2% by volume in a residence. The residential sample was collected from the occupant's vacuum cleaner bag. All of the twelve samples collected contained at least 2% by volume chrysotile. No other type of asbestos fibers were reported at these subsites.

On the New Vernon Road Site seven samples were collected. The samples were collected in one of two dwellings, in a small garage, along a dirt road leading between the two buildings to the main disposal area, and along a dirt path bordering the disposal area. At the White Bridge Road Site, five samples were collected. These samples were collected on or near the riding track and the dirt path leading up to the track.

The New Vernon Road Site consists of approximately 30 acres of land off New Vernon Road in Meyersville, New Jersey, in Passaic Township. In the late 1960s, asbestos refuse from an asbestos processing plant in Millington was landfilled on the site at two separate locations. These locations are now called the filled pond area and the main landfill area. The refuse consisted of loose asbestos fibers, broken asbestos tiles, and broken asbestos siding. Previous investigations detected asbestos waste in the pond area in front of the residence, the main landfill, the dirt road, and in the vicinity of a shed near the residence. The property owner, his wife and two children, and one adult tenant live on the site. The owner employs approximately 3 other persons in his on-site business. These workers spend part of each workday on site.

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The White Bridge Road Site consists of approximately 12 acres in Meyersville. The site is now a horse farm. From 1970 to 1975, wastes similar to those disposed of at the New Vernon Road site were landfilled in the eastern portion of the site in and around what has become a riding track. Asbestos contamination has been found on the riding track, the dirt path leading to the riding track, and in the adjacent grazing field. The property owner and his wife live on the site. The horse farm and its associated riding track is a commercial enterprise employing approximately three individuals besides the owner. These employees work on site.

Both the White Bridge Road Site and the New Vernon Road Site are located in a primarily rural area. A combined total of 15-20 off-site residences are potentially impacted by off-site migration of the wastes. Additional site descriptive information and demographics can be found in the MA.

Follow-up sampling by the Environmental Protection Agency in August 1990 found loose fibers of chrysotile asbestos in the dust in several residences with diameters ranging from 0.02 μ m to 0.2 μ m. The concentration of asbestos in the dust was reported as less than 1% by volume in all samples. These dust samples were collected in areas where contamination was expected to be found as recommended by the ATSDR. These data have not undergone quality assurance review and should be considered preliminary.

DOCUMENTS AND INFORMATION REVIEWED

Health Assessment for Asbestos Disposal Site. Prepared by Agency for Toxic Substances and Disease Registry. April 10, 1989.

Revised Recommended Asbestos Standard. Prepared by National Institute for Occupational Safety and Health. December 1976.

Draft Toxicological Profile for Asbestos. Prepared by Agency for Toxic Substances and Disease Registry. February 16, 1990.

Excerpts from Sampling Report: New Vernon Road Site and White Bridge Road Site, Asbestos Dump Sites. Prepared by Fred C. Hart Associates, Inc., Subcontractor to Roy F. Weston, Inc. Prepared for: U.S. Environmental Protection Agency, Region II. Undated.

Conference Call between Agency for Toxic Substances and Disease Registry, Division of Health Assessment and Consultation, Emergency Response and Consultation Branch; Public Health Advisor, Agency for Toxic Substances and Disease Registry, Region II; and, New Jersey Department of Health. August 21, 1990. Refer to ERCS Superfund Record of Communications dated August 27, 1990.

Conversation between Mr. Richard Nickle, Agency for Toxic Substances and Disease Registry and Mr. William Howard, Centers for Disease Control. August 30, 1990. Refer to ATSDR Superfund Record of Communications dated August 31, 1990.

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Conversation between Mr. Richard Mickle, Agency for Toxic Substances and Disease Registry and Mr. Raymond McQueen, National Asbestos Council. August 30, 1990. Refer to ATSDR Superfund Record of Communications dated August 31, 1990.

Facsimile transmission of preliminary analytical data. Transmitted by: Mr. Arthur Block, Public Health Advisor, Regional Services, Region II, Agency for Toxic Substances and Disease Registry, New York. Transmitted to: Mr. Richard Mickle, Division of Health Assessment and Consultation, Emergency Response and Consultation Branch, Agency for Toxic Substances and Disease Registry. August 5, 1990

DISCUSSION

Asbestos is a group of six naturally occurring fibrous minerals. Asbestos is a known human carcinogen and is one of the primary causes of mesothelioma. Mesotheliomas are tumors arising from the thin membranes surrounding internal organs. Inhalation of asbestos fibers may lead to fibrotic lung disease (asbestosis), cancer of the lung, the pleura, and the peritoneum. There is some evidence that inhalation and ingestion of asbestos fibers may lead to an increased risk of gastrointestinal cancer. In order for exposure to occur, the asbestos must exist as free fibers capable of becoming airborne. There is a substantial latency period of between ten and thirty years between the time exposure first occurs and the occurrence of apparent health effects. Some human and animal studies have indicated that adverse effects may occur even after relatively short periods of exposures.

The length and diameter of fiber is important in determining the ultimate effect of exposure. However, there is little doubt, based on human epidemiological studies and animal studies, that all types of asbestos, including chrysotile, can cause cancer. Chrysotile asbestos was the only form of asbestos fiber identified at these subsites. Diameters of the fibers found were in the range of 0.02 to 0.2 um. Fibers less than 0.5 um in diameter are most active in producing tumors (NIOSH Recommended Standard). Inhalation of chrysotile fibers can also lead to asbestosis, a chronic lung disorder.

All concentrations of asbestos fibers studied to date demonstrated an excess cancer risk, as reported in the NIOSH Recommended Standard. Both the NIOSH Recommended Standard and the ATSDR Toxicological Profile report a marked enhancement of the risk of lung carcinoma in exposed workers or populations who also smoke cigarettes. The Toxicological Profile indicates this increased risk may be as high as ten times the nonsmoker risk.

In making conclusions based on data obtained from vacuum cleaner bag samples, the following factors should be considered:

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- o The concentration of asbestos in the vacuum bag may reflect higher or lower concentrations than is actually present in the home.
- o Although primarily used in the household, many vacuum cleaners are used elsewhere (e.g., cleaning the interior of a car). This introduces other sources of contamination which may skew the analytical results.
- o During vacuuming, some fibers may pass through the bag and be exhausted into the ambient air of the home. Thus, the action of the vacuum may increase the potential for exposure by increasing the number of fibers in the air in the breathing zone.

There is, however, ample opportunity for human exposure to the chrysotile asbestos to occur at both of these subsites. The respective owners spend a great deal of time in the outdoors, either at the stables or working with equipment, and children play outdoors on site. Contamination may be brought into the home as well. There have been documented incidents in which asbestos workers have carried contamination home on their clothing and on their person. In this situation, it is possible that children and pets which frequent the site may also carry contamination into the home.

CONCLUSIONS

As described previously, excessive risk has been demonstrated at all fiber concentrations studied as reported by NIOSH in their recommended standard. The high concentration of chrysotile asbestos in the soil outside the homes represent a serious threat to the occupant's health. Therefore, ATSDR concludes as follows:

1. Based on the information available, the residents at both subsites face an imminent and substantial health threat from exposure to asbestos through inhalation and possibly ingestion. Smokers would face an increased risk of asbestos related health effects as compared to non-smokers.
2. A ~~potential health threat~~ also exists for the surrounding population if the friable asbestos on-site migrates off-site.
3. A potential health threat also exists for workers at the New Vernon Road site and workers and customers at the horse farm and riding stables at the White Bridge Road Site. The families of these workers and customers may be at risk as well.

RECOMMENDATIONS

1. The exposure of the residents on these sites to asbestos should be terminated.

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2. The occupants of the dwelling in which the asbestos has been found should undergo ~~medical examination~~.⁶ Periodic examinations after an initial baseline is established should be considered by the attending physician since asbestos exposure has a substantial latency period.
3. ~~Additional sampling~~ in adjacent homes should be undertaken. If dust samples are collected, they should be from relatively inaccessible areas, such as the top of bookshelves and under refrigerators.
4. The data collected during the additional sampling recommended should be evaluated to determine if further action is necessary. ATSDR would be available to perform this evaluation.
5. Access to the sites should be ~~restricted~~.
6. Activities which tend to ~~generate dust~~, including horseback riding, should be ~~restricted~~ in areas known to be contaminated with asbestos.
7. ~~Warning Signs~~ specifying the exposure risk should be posted in the vicinity of the horse track at the White Bridge Road Site. The signs should remain in place until mitigative efforts alleviate the health threat.

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Preparers of Report

Emergency Response Reviewer

**Richard A. Nickle
Emergency Response Coordinator
Emergency Response and
Consultation Branch
Division of Health Assessment
and Consultation**

Toxicological Reviewer

**Allen Susten
Senior Toxicologist
Emergency Response and
Consultation Branch
Division of Health Assessment
and Consultation**

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